

Homework Assignment 1

601.467 / 667 Introduction to Human Language Technology

Fall 2019

Due: Wednesday October 16, 2019

October 2, 2019

Phoneme Recognition

In this part of the assignment, you will implement simple model for phoneme recognition with deep learning framework and answer questions.

Question 1. Open the following colab notebook and complete the phoneme recognition assignment:

https://colab.research.google.com/drive/1Pb0kFim4CObA23_Mb4Kus5hu3I1T8q5u

Follow all the steps specified in it. Include link to your solved notebook in your submission. Some parts of the notebook are optional and will not be graded.

Question 2. Explore different number of layers and hidden sizes for a window size of 5. Which one worked better?

Question 3. Explore different window sizes and report the one that worked best for you. Does increasing the context help?

End-to-End Speech Recognition Toolkit

Question 4. Open the following colab notebook and complete the end-to-end ASR recognition: .

<https://colab.research.google.com/drive/1lITdVShy7gEqNdQmc4yraj38sV7PiagX>

Follow all the steps specified in it. Include link to your solved notebook in your submission. Some parts of the notebook are optional and will not be graded.

Question 5. Explore different language model weights ($\lambda = \{0.0, 0.1, 0.2, 0.3\}$), list the character error rate (CER) for each weight, and report the one that worked best (minimum CER) for you. Does the language model fusion help? Does increasing the language model weight always help?